



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/697,837	10/28/2003	Paul J. Rudeck	2002-0752.00/US	9305
7590	02/25/2005		EXAMINER THOMAS, TONIAE M	
Kevin D. Martin 8000 S. Federal Way MS 01-525 Boise, ID 83707-0006			ART UNIT 2822	PAPER NUMBER

DATE MAILED: 02/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

14A

Office Action Summary

Application No.

10/697,837

Applicant(s)

RUDECK ET AL.

Examiner

Toniae M. Thomas

Art Unit

2822

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 5-16 is/are allowed.
- 6) ☒ Claim(s) 1, 2 and 4 is/are rejected.
- 7) ☒ Claim(s) 3 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 10/28/03.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. This action is a first Office action on the merits of Application Serial No. 10/697,837. Currently, claims 1-16 are pending.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

- (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 2, and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hsue et al. (US 5,115,296) in view of Yeh et al. (US 6,372,663 B1).

The Hsue et al. patent (Hsue) discloses a method used during the formation of a semiconductor device (figs. 1-3 and accompanying text). The method comprises implanting a first region 20 of a semiconductor material 12 with a dopant to a first concentration (fig. 1 and col. 4, lines 1-6), and implanting a second region 24 of the semiconductor material with the dopant to a second concentration (fig. 2 and col. 4, lines 21-24), wherein the first concentration is greater than the second concentration; and exposing the first and second regions of the semiconductor material to an oxidizing ambient (fig. 3 and col. 4, lines 27-34).

The oxidizing ambient comprises a temperature of between 700°C and about 1100°C (col. 4, lines 31-34).

Hsue does not teach that the oxidation ambient comprises a partial pressure of steam. The Yeh et al. patent (Yeh) discloses a wet oxidation process (col. 5, lines 27-31), wherein the oxidizing ambient comprises a partial pressure of steam (col. 6, lines 7-11). The oxidizing ambient further comprises an H₂ gas flow rate of between about 0.01 SLM and about 20 SLM, and an O₂ gas flow rate of between about 0.001 SLM and about 5 SLM (col. 6, lines 30-47).

Both Hsue and Yeh are from the same field of endeavor, fabrication process for integrated circuit devices. Thus, the purpose for which Yeh is relied upon would have been recognized in the pertinent reference, Hsue, by one of ordinary skill in the art at the time the invention was made.

A wet oxidation process is used in Hsue to expose the first and second regions of the semiconductor material to an oxidizing ambient (col. 4, lines 27-34). It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to modify Hsue by using an oxidizing ambient comprising a partial pressure of steam, as taught by Yeh, because it is well known in the art to use an oxidizing ambient comprising a partial pressure of steam in wet oxidation processes (Yeh – col. 1, lines 45-50).

Yeh does not explicitly teach: that the partial pressure of steam is proportional to an oxidation ratio of a first region to a second region, or that

the oxidation ratio is greater than one and variable with variations in the oxidizing ambient. However, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to provide a partial pressure of steam that is proportional to an oxidation ratio of a first region to a second region and provide an oxidation ratio that both is greater than one and variable with variations in the oxidizing ambient, since it has been held that discovering an optimum value result effective variable involves only routine skill in the art (*In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980)).

Furthermore, Hsue does not teach that the oxidizing ambient comprises a pressure of between about 5 mTorr and about 2000 Torr. However, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to provide the oxidizing ambient at a pressure that is between about 5 mTorr and about 2000 Torr, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or working ranges involves only routine skill in the art (*In re Aller*, 105 USPQ 233).

Allowable Subject Matter

Claims 5-16 are allowable over the prior art of record. Claim 3 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Toniae M. Thomas whose telephone

Art Unit: 2822

number is (571) 272-1846. The examiner can normally be reached on Monday-Thursday from 8:30 a.m. to 5:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amir Zarabian can be reached on (571) 272-1852. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TMT
21 February 2005



Mary Wilczewski
Primary Examiner